

SCUTULOIDEA KUTU, A NEW SPECIES OF
SPHAEROMATIDAE (ISOPODA: CRUSTACEA)
FROM NEW ZEALAND

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Abstract. A second species of the endemic isopod genus *Scutuloidea* is reported from northern New Zealand waters. *Scutuloidea kutu* sp. nov. is distinguished from *S. maculata* Chilton, 1883 by having a relatively smaller eye, a slender body, a truncated pleotelson lacking an apical notch, and single plate uropods which terminate well before the posterior margin of the pleotelson. *Scutuloidea kutu* can live sympatrically with *S. maculata* but is far less abundant. At this stage its only known habitat is exposed reef environments where it appears in the epifaunas of red seaweeds.

Seasonal samples of seaweed infaunal isopoda from northern New Zealand (Stephenson & Riley 1995) were dominated by species of the family Sphaeromatidae. Most taxa can be determined following Hurley & Jansen (1977). The genus *Scutuloidea* (containing *Scutuloidea maculata* Chilton, 1883), reported to be widely distributed in seaweeds, sponges and bryozoans throughout the New Zealand region, is generally regarded to be monotypic. In the course of our sampling for isopods some exceptionally high densities of *Scutuloidea maculata* were found (Stephenson & Riley 1995) in red seaweed *Plocamium costatum* and elsewhere in *Osmundaria colensoi*. In these collections a second undetermined species of *Scutuloidea* was recognised which we report here.

SYSTEMATICS

FAMILY SPHAEROMATIDAE Hanson, 1905

SCUTULOIDEA Chilton, 1883

TYPE SPECIES: *Scutuloidea maculata* Chilton, 1883.

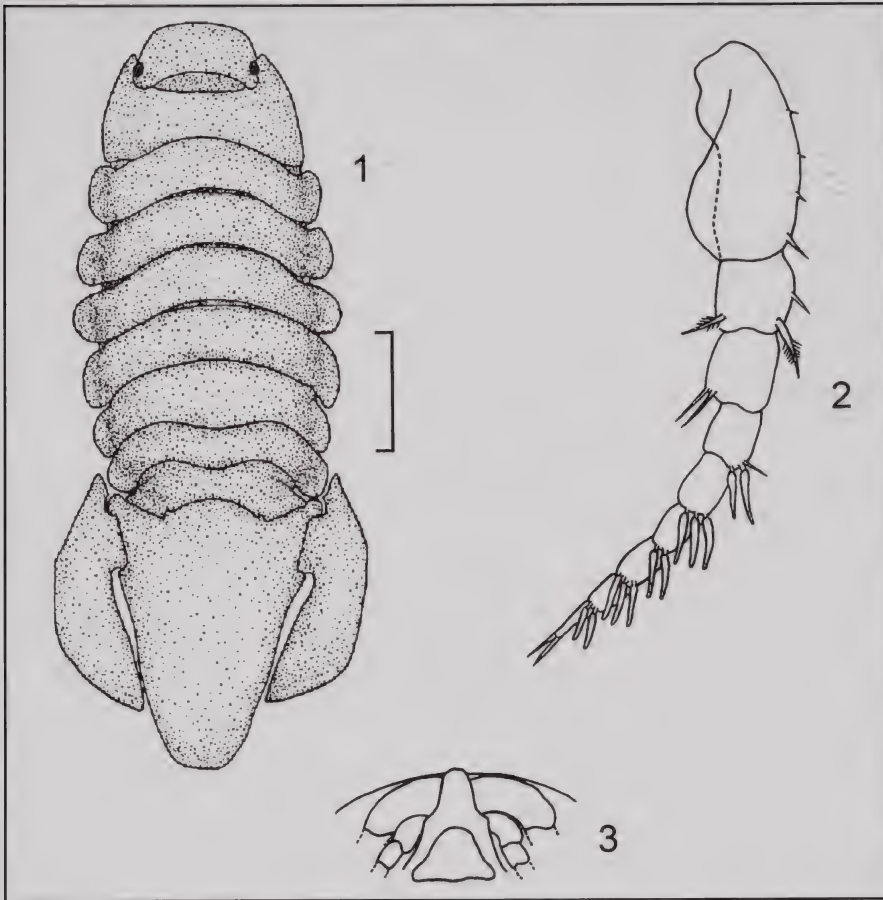
GENERIC DIAGNOSIS

Eubranchiate Sphaeromatidae with outer ramus of pleopoda 3 of two segments. Body narrowly ovoid, surface unadorned. Pleotelson conspicuously large and triangular, uropoda each consisting of a single broad plate. Sexes similar.

Scutuloidea kutu sp. nov. (Figs 1-12)

MATERIAL EXAMINED

HOLOTYPE. Male. (6.0 mm), Fraser Rock, Tapeka, Bay of Islands, New Zealand. 35° 14.5' S, 174° 07.0' E, 9. vii. 1991, from red algae *Plocamium costatum*, subtidal (0.3-1.0 m) exposed rock face. Coll. A.B. Stephenson (AK 72949).



Figs 1-3. *Scutuloidea kutu* sp. nov. 1. Male holotype, dorsal view. 2. Male paratype, antenna 1. 3. Head, ventral view. Scale line 1.0 mm.

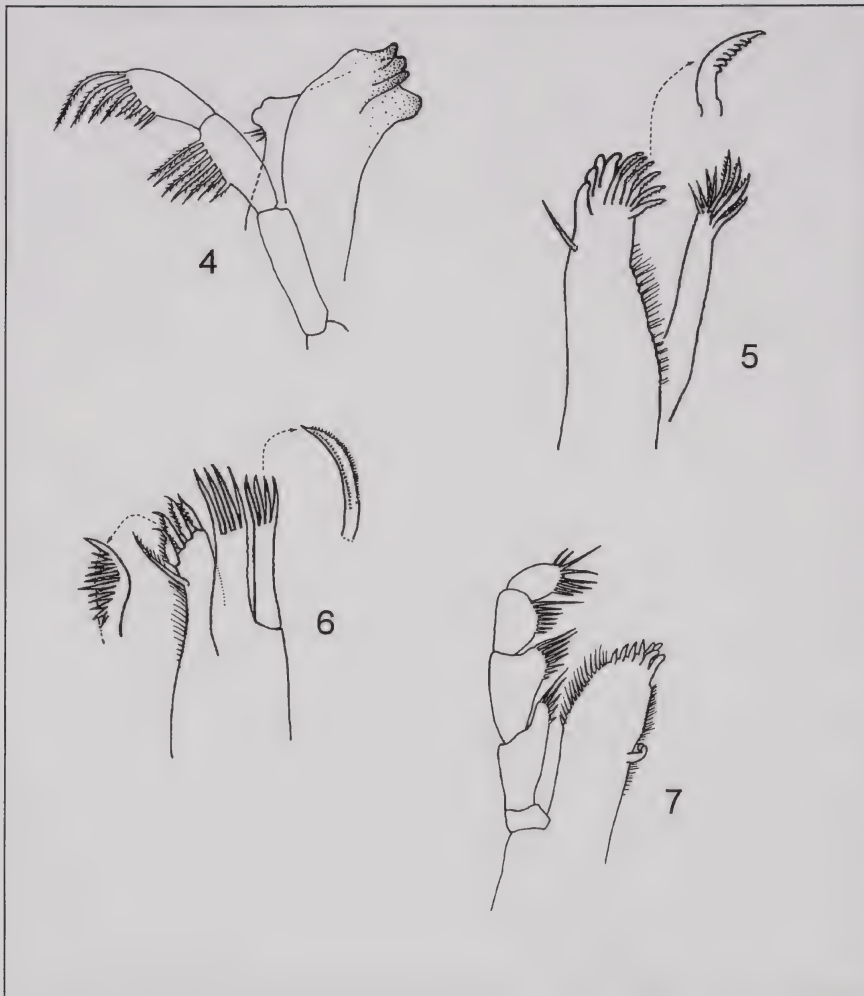
PARATYPES. Males, n=16 (5.8-6.6 mm), females, n=10 (2.5-4.8 mm), same data as holotype (AK 72950). Males, n=6 (7.1-7.6 mm), females, n=20 (4.0-5.5 mm) Lion Rock, Piha, Auckland. 36° 57.3' S, 174° 28.0' E, 30. vi. 1992, from red algae *Osmundaria colensoi*, subtidal rock face. Coll. M. S. Morley (AK 72951).

Additional material. Fraser Rock, same locality as holotype, 16. iii. 1992 (AK 75788), 18. xi. 1992 (AK 79082). Spirits Bay, North Cape. 34° 25.3' S, 172° 51.3' E, 7. iv. 1993, from red algae on exposed rock platform. Coll. M.S. Morley (AK 79122).

DESCRIPTION

MALE

Body narrowly ovate, almost truncate. Anterior margin of cephalon with a small rostral projection not visible from above. Cephalon partially immersed in pereonite 1. Eyes very small, carried posteriorly, but lying above anterolateral cusps of pereonite 1. Coxae of

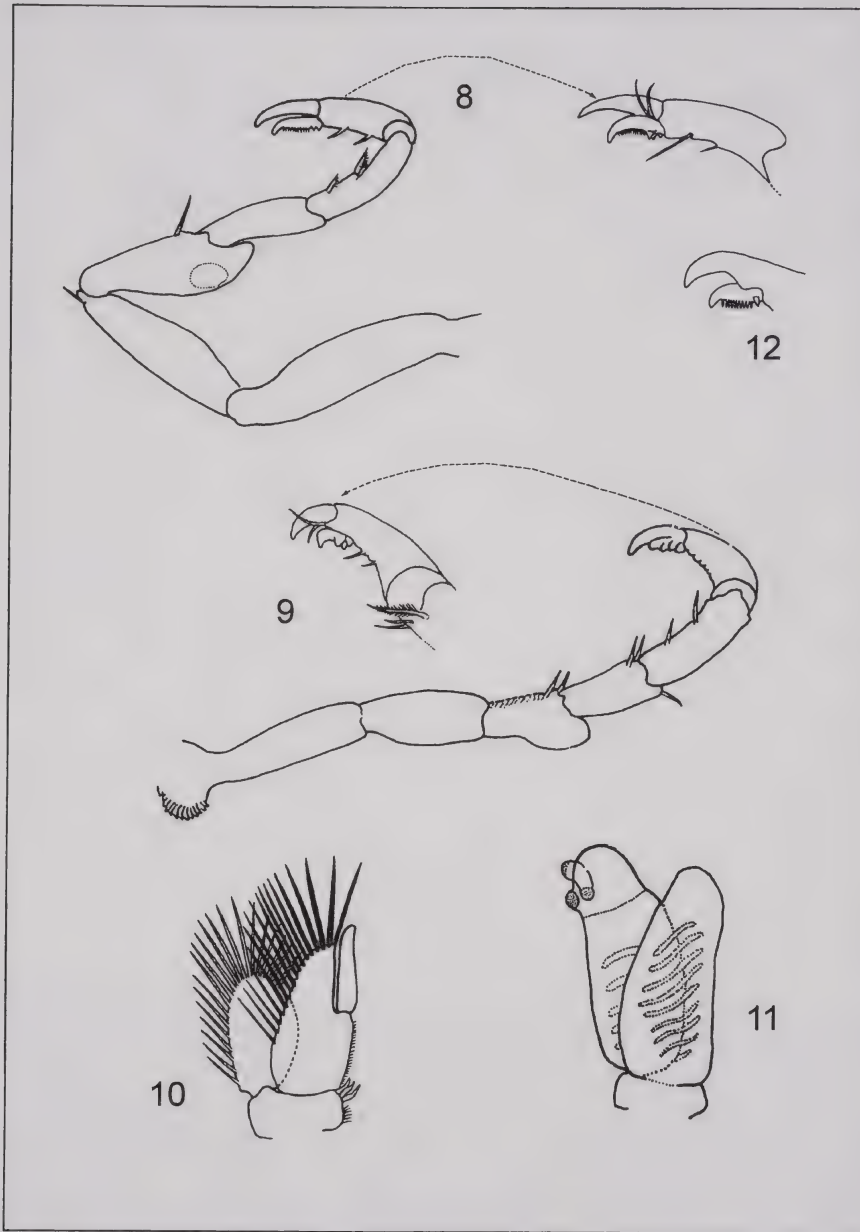


Figs 4-7. *Scutuloidea kutu* sp. nov., male paratype. 4. Left mandible. 5. Maxillule. 6. Maxilla. 7. Maxilliped.

pereonites 2-7 not greatly expanded, fused to tergite, sutures not visible. Pleon of one distinct segment. Apex of pleotelson truncated, never notched.

Antenna 1 peduncle of three segments, segment 1 largest, having a somewhat expanded glove-like appearance with longitudinal groove and lobe along inner face. Flagellum of six segments each sparsely setose, all except the terminal segment bear aesthetascs. Antenna 2 (4 + 9) segments, flagellum has tufts of short setae from each segment. Epistome narrowly rounded, produced anteriorly to separate the bases of antenna 1.

Mandible incisor tricuspsate, with a broadly curved cutting face medially. Molar process feeble, a tuft of 3-5 short hairs subtended immediately below the molar plate. Mandibular palp of three segments, basal segment longest, segments 2 and 3 with setae. Maxillule has a terminal cluster of stout spines (4) and serrated spines (6) on lateral lobe; simple and plumose setae (4 + 4) on medial lobe. Maxilla with four comb-toothed spines, preceded by a single



Figs 8-12. *Scutuloidea kutu*, sp. nov., male paratype. 8. Pereopod 2. 9. Pereopod 5. 10. Pleopod 2. 11. Pleopod 5. 12. *Scutuloidea maculata*, dactylus pereopod 2.

plumose seta, on medial lobe; middle and lateral lobes each with four minutely serrated spines. Maxilliped endite with 4 + 4 spines, single coupling hook and fine setae confined to the medial fringe. Palp articles 2-5 with setae.

Pereopods progressively increase in size P1-P7; pereopods 2 and 3 slender, less robust, than others. Pereopod surfaces are lightly scaled. Distinct secondary unguis on dactylus of all pereopods; those of P2, P3 having a comb-like distal extension, remainder of a claw and three basal conical projections only. Pereopod 1 propodus with four stout bristle-faced setae on posterior margin; propodus pereopod 2 has two such setae but they do not occur on pereopods thereafter. Merus of all pereopods enlarged anteriorly, in P2, P3 a sub-cuticular gland is apparent.

A dome shaped boss with rasp-like surface sculpture, occurring proximally, from coxopodites of pereopods 4-7, and a contact area at the point of insertion with the pereon is thickened. A short, single, series of hook-like hairs border the anterior margin of coxa 2. These have near contact with a similar patch of hairs, scales, and a sub-marginal ridge arising at the posterolateral border (fused coxa/pereon, segment 1) adjacent to the point of insertion of pereopod 1.

Pleopod 1 exopod oval, endopod sub-triangular, both with natatory marginal setae; endopod medial border with a dense pilose fringe. Peduncle pl 1, medial margin has three coupling hooks. Appendix masculina of pleopod 2, simple, length not exceeding beyond endopod, lightly pilose on distal half of medial border. Exopods of pleopoda 3 and 5 segmented. Pleopod 3, both branches with marginal natatory setae. Exopods and endopods pleopoda 4, 5 pleated; exopods pl 5 with three scaled coupling bosses offset at apex.

Uropoda a single plate (exopod lacking), with a somewhat angular outer margin, terminating well short of pleotelson apex.

FEMALE

With the exception of sexual characters, as for male.

COLOUR

In life, dull brick red, without chromatophores.

ETYMOLOGY

The Maori name "kutu" is applied to this isopod for its association with seaweed; the hair strands of Hine moana.

Ko tenei Kutu moana e noho ana i roto te huruhuru o Hine moana; ko nga whenu o te rimurimu he ahua rite tonu ki nga tihi o te rakau pena ki te ahua aorangi me te taratara, engari whero te tae i nga wa katoa. Tino paraha te Kutu moana, na ka mau nga waewae piki e whitu o te kutu ki nga whenu o nga huruhuru o Hine moana ara ko nga rimurimu whero. Ka kaingia te kutu i nga kararehe iti o te moana e noho ana i kona hei whakama i nga rimurimu. Ka tiakina e nga rimurimu i nga kutu moana no nga ngaru me te hukahuka o te moana. Kei konei te wahi ka noho te Kutu me ona whanaunga, ko te Koura-iti, te Mawhitiwhiti me te Papaka huna; ko te katoa e noho nei i roto i te rimurimu whero.

Tangaroa

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Uruao

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Tahumaero

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Te Koura - kutu moana

(Sources from oral information and undated typescript [Matorohanga MS, Ngati Kahungunu] translated by D.R. Simmons and M. Penfold, Auckland University.)

DISCUSSION

Scutuloidea kutu is the second described species of this endemic genus. It is immediately distinguishable from *S. maculata* by colour, the narrowly ovate body, and by the uropoda terminating well short of the pleotelson apex which is also lacking a terminal notch. In contrast *S. maculata* is a chestnut brown colour with an ovate body and the uropoda terminate level with the apex of the pleotelson which is large, triangular and has a wide, shallow apical notch. *S. kutu* has significantly smaller eyes (19% of head length, n=15) than *S. maculata* (38.5% of head length, n=15). Females are commonly carried by males within the space confined by the pereopods; this behaviour has also been noted in *S. maculata* by Hurley & Jansen (1977). That it is a position of amplexus (Poore 1981) is consistent with thickened, scaled, patches and glands on pereopods 3-5 in males.

Scutuloidea kutu can exist sympatrically with *S. maculata* and both species were recovered simultaneously during our investigation of seaweed epifaunas in the Bay of Islands (Stephenson & Riley 1995). However, *S. maculata* generally shows relatively low tolerance to wave action, a narrow vertical shoreline range predominantly between low water neap and spring (Jansen 1971), often abundantly associated with *Carpophyllum mascalocarpum* (Stephenson & Riley 1995) and other narrowly flat-bladed seaweeds such as *Plocamium costatum* and *Xiphophora chondrophylla*. By contrast, *S. kutu* has mostly been recovered subtidally in more exposed situations, and from filamentous red seaweeds *Plocamium costatum* and *Osmundaria colensoi*. It does not appear to occur in any habitat with the same high abundance that can exist for *S. maculata*.

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